

agricultural marketing

FEBRUARY 1965

APPLICANTS YOU ARE ELIGIBLE FOR FOOD STAMPS IF YOU

1. LIVE IN CUYAHOGA COUNTY
2. HAVE COOKING FACILITIES IN YOUR HOUSEHOLD
3. HAVE NOT MORE THAN \$300⁰⁰ IN LIQUID ASSETS
BANK ACCOUNTS SAVINGS BONDS CASH ETC
4. HAVE INCOME NO HIGHER THAN THE FOLLOWING

HOUSEHOLD SIZE GROSS INCOME

1	\$110
2	180
3	220
4	260
5	290
6	320
7	355
8	385
9	415
10	445
11	475
12	505

Prepared for
New Food Stamp Program

ORVILLE L. FREEMAN
Secretary of Agriculture

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Agricultural Marketing Service

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Cover Page

The chart on this month's cover was used in Cleveland, Ohio, for briefings on eligibility requirements for needy families to participate in the Food Stamp Program. A behind-the-scenes report of the work involved before food coupons are issued begins on page 8.

Editor, JAMES A. HORTON

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Above, Milton Rosenberg, a grader for AMS' Poultry Division, checks the quality level of a sample of broken-out cartoned eggs in a food store warehouse. He's using a micrometer gauge to find the Haugh Unit reading for the height of the albumen. At right, he holds each of the Extra-Large Grade A eggs against a candling light to double-check the grade designation.

'Check-Grading' Eggs for Grocery Stores

A special AMS service for food markets which do not pack or grade their own eggs.

Retail food markets which do not pack or grade their own eggs are becoming interested in a special "Check Grading" service which the Agricultural Marketing Service, U.S. Department of Agriculture, provides for eggs after they leave an official USDA grading plant.

These stores are interested in maintaining the quality of their eggs at the same high level as when they were cartoned in egg grading plants. This additional service gives further assurance to the retail stores and to their customers that they are receiving eggs of the quality as marked when originally graded.

Four large retail food outlets have signed applications with AMS for this service on a regular continuing basis. Federal-State graders check the eggs in their warehouses to verify the marked grade before they are distributed to the retail stores. As with all other grading work done by AMS, the applicant pays a fee for the grading service.

The Federal-State graders are also available to render an additional service upon the request of the applicant. The assigned USDA grader then visits the individual retail stores to check the egg-handling facilities. He checks the cooler where eggs are held, to observe temperatures, possible off-odors, and to determine whether or not the cases are stacked in a manner to prevent damage. He also checks egg dis-

play cases to observe the rotation of stock, takes the temperature, and may make other appropriate comments.

This service is now being furnished to three food retailers in the New York City metropolitan area and one in the Washington, D.C. area.

The first food store to request the service was Giant Foods, Inc., Washington, D.C. in January 1959. Next was H. C. Bohack Company, Inc., Brooklyn, N.Y., in August 1960. Wakefern Food Corporation (Shop-Rite Stores) of Elizabeth, N.J., began in April 1964 and Associated Food Stores, Inc., Jamaica, N.Y., started in September 1964. Additional retail outlets in other markets have shown an interest in this program.

Other grocers over the past several years have requested the grading of USDA cartoned eggs in or from retail stores. Those gradings have been performed on a fee basis in various markets to comply with specific request. The Agricultural Marketing Service's Poultry Division considers this a valuable extension of its voluntary egg grading program. It gives retail food stores and consumers the added assistance of accurate grading and quality eggs.

(The use of commercial names does not constitute an endorsement by the U.S. Department of Agriculture.)

The Dairy Market 50 Years from Now

By Alexander Swantz

THE DAIRY market of the future will have an impact on the kind of cow and the kind of farm we'll have during the next half-century. So there is good reason to see how the market for milk and dairy products is changing and to speculate on what it could be like in the years ahead.

The U.S. Department of Agriculture has no official view of what the dairy market will be like far in the future. However, an exchange of views with my colleagues has resulted in these forecasts of changes:

CHANGE NO. 1: A rapidly increasing population, a steady rise in disposable incomes, and a steady increase in the educational level and nutritional knowledge of consumers will give the dairy industry the largest potential market it has ever had.

The population of the United States has doubled at least every 50 years. It will more than double in the next half-century. Consumer incomes will rise to all-time highs. Certain age groups will become primary markets for specialty products. Prime examples will be teenagers as a group and senior citizens as a group.

CHANGE NO. 2: The "real" price of milk to consumers will reach all-time lows.

The "real" price of a quart of milk is measured by the minutes of work needed to earn enough money to buy the milk. The U.S. Bureau of Labor Statistics offers information going back to 1890 on the two items needed to calculate the "real" price of milk — (1) the average price, in cents, for a quart of milk, and (2) the average hourly earnings of a factory worker.

In 1914, the average price per quart of milk delivered to homes in the United States was 8.9 cents, and factory workers' earnings averaged a little over 22 cents an hour.

Thus, it took a little more than 24 minutes' work for American consumers to pay for a quart of milk 50 years ago. Last year (1963) it took only 6 minutes' work!

This means that milk and milk products are, indeed, good buys for American consumers.

And they will be "better buys" in the next half-century as milk producers continue their amazing agricultural revolution of producing an abundance of food with greater efficiency, and as workers in the United States continue to share in the production efficiency of American industry through higher hourly wages.

CHANGE NO. 3: A changing market structure in the agriculture and food industries will have important effects on future dairy markets.

Broad changes in marketing have affected the entire food industry. The most notable perhaps is the increasing volumes handled by individual firms in many parts of the food industry.

In food retailing, the number of stores has dropped rapidly while the average size of individual stores has grown tremendously.

The emergence of large-scale enterprise in the food industries, closely resembling that for many industrial products, is demanding closer coordination between all segments and is requiring more precisely scheduled delivery of large volumes of products—produced or sorted to exact requirements for quality, size, package, and uniformity.

These trends will continue.

CHANGE NO. 4: All milk coming to market will be whole milk and will be subject to the same quality standards.

The discriminating, affluent, knowledgeable consumer of the future will insist on dairy products of the highest quality for all purposes — from fluid products in fresh, sterilized, or irradiated form to such well-known storables as butter and cheese. If they are not provided, she will substitute other food products of high, consistent quality.

Milk sanitarians and health authorities are permitting the freer flow of milk from one production area to another under reciprocity agreements

based on U.S. Public Health Service ratings.

Even now, many of the State quality standards for milk for *manufacturing* purposes are not far from meeting the quality standards required for milk sold for *fluid* use. Producers of manufacturing milk are converting to farm bulk tanks and expanding operations for greater efficiency. It will take very little price incentive and very few changes in operation for them to begin producing Grade A milk.

Sanitarians will reduce the "frills" in some Grade A requirements that cost producers money and don't contribute significantly to a safe supply of milk. This will make it easier for every dairyman to meet the single quality standard.

CHANGE NO. 5: Prices to producers will increase.

Prices paid to producers for milk will rise as more milk is used in products having a greater value in the marketplace. Producer prices will also increase as the nutritional value of such components of milk as protein, lactose, and minerals is reflected in increased demand for them from consumers, industrial users, and food processors.

CHANGE NO. 6: The growing importance of the solids-not-fat part of milk will force a change in our traditional method of pricing milk to producers.

Quick and accurate methods for testing milk for protein and nonfat solids are being developed. They will tell us — in less than a minute — the amount of butterfat, protein, and lactose in a milk sample.

Producers will be paid for milk on the basis of all of these components.

Quick tests will help food processors put milk components together in the proportions needed for a new product or for a product needed for a specialized market. It also will help producers in breeding programs designed to increase the solids-not-fat production of producer herds.

CHANGE NO. 7: The per capita consumption of milk in all forms will increase.

There are several reasons for this forecast. The per capita use of fluid products featuring the nonfat solids part of milk will increase at a rate faster than the increase in population.

Cheese and ice cream will continue to gain in popularity with consumers. These are nutritious and versatile foods. They have wide taste appeal and bring out the gourmet instincts in consumers.

Consumers will use more of the milk fat and nonfat parts of milk in a wide variety of new products and new uses for existing products. Such specialty products as sour cream, cottage cheese, yogurt, and flavored milks also face a bright future.

CHANGE NO. 8: Milk and dairy products will face increasing competition from a wide variety of new food products and from old food products appearing in many new forms.

The technology of processing, packaging, and merchandising has advanced so fast that it can be called revolutionary. The strongest trend in this development has been the merchandising of new food products. This trend will intensify as companies search for ways to create a demand for a specialized food item that can carry a higher gross margin than a staple item.

As a result of these and other changes, the typical supermarket today handles five or ten times as many items as the grocery store of 40 years ago. A typical supermarket today handles some 6,000 items, including a much wider variety of dairy products.

We are told that a commercial development of fabricated protein products is not far off. In this process the protein is isolated from products such as soybeans and wheat gluten and is put in fiber form. From it can be made a "boneless ham" or a "chicken leg," for example. When combined with the results of flavor research and food coloring, we could have a substitute food product with good appearance and taste quality.

CHANGE NO. 9: Technology will lead to the development of new dairy products and new forms of today's dairy products.

Dairy markets of the future will be affected by such developments as:

(1) The progress in identifying, synthesizing, and incorporating vitamins and trace elements in food;

(2) The development of additives,

such as anti-oxidants, which help maintain shelf life and improve product quality; and

(3) Such advances in processing as direct steam injection, aseptic canning, flash freezing, freeze drying, dehydration, and irradiation.

All of these innovations provide a solid basis for technological advances in the future.

By chemical analysis through chromatography, it is now possible to isolate and identify the chemicals that are flavor components of food, opening the secrets of natural flavor of almost any food. For example, strawberry flavor has been separated by chromatography into more than 100 components. As we learn to stabilize and synthesize these natural flavors, food processors can enhance the flavor of a food or give that flavor to new food forms.

Dairy processors will use these methods to process milk and to combine the components of milk with real and synthetic foods in the years ahead to furnish tailor-made nutrition. All this will help dairymen compete more effectively for the consumer's dollar.

CHANGE NO. 10: Byproducts of dairy processing, now considered a burden by many, will become important for industrial uses and as ingredients in processed foods.

Cottage cheese whey is an example. The U.S. Department of Agriculture recently announced a method for converting this byproduct waste into a product that provides a valuable source of nutrients in processed foods.

As dairy manufacturing plants increase the size of their operations, they will use various byproducts in more valuable uses. In some cases specialty plants will be built to utilize these byproducts. Dairy manufacturers will come closer to emulating the meat packing plants that have succeeded in using every byproduct of the industry except the "squeal."

CHANGE NO. 11: The distribution system for fluid milk items will undergo dramatic changes.

Five developments illustrate these coming changes:

(1) The market for home-delivered fresh fluid products will decline further in importance. Supermarkets, specialized dairy stores, convenience food stores, vending machines, gasoline stations, drive-in dairies, and a wide

variety of other outlets will supply consumers a variety of products and services at prices that will attract sales away from the home-delivered market for fresh fluid products.

(2) Large milk-processing plants will expand their sales into distant cities and towns now served almost exclusively by local processing plants. This will give consumers in many areas additional choices.

(3) More dairy companies will become food companies in the sense that they will handle both dairy and non-dairy foods. This will give a greater national character to the buying and selling of milk and dairy products.

(4) More milk will be sold in preserved forms for use in the home in fluid form.

(5) More milk and milk products will be sold through vending machines and coin-operated or fully-automated retail outlets.

How can we summarize these forecasts? We might say that — In the next 50 years the dairy industry will . . .

(1) Have the largest, most prosperous, and best-educated potential market it has ever had;

(2) Provide milk at all-time low prices in relation to wages earned;

(3) Receive from producers only whole milk which meets a single high quality standard;

(4) Pay its producers higher prices;

(5) Base those prices on all the components of whole milk;

(6) See an increase in per capita consumption of milk in all forms;

(7) Face greater competition from new food products and food forms;

(8) Use advance technology to develop new dairy products and new forms of today's dairy products;

(9) Use all the byproducts now wasted or under-used;

(10) Use a distribution system that features fluid products made from preserved forms of milk, and made by food companies selling nationwide or on a regionwide basis, through stores, coin-operated machines, and fully-automated retail outlets.

This may sound like a lot of change, but we live in a world of change. Change can mean opportunity too, particularly if we use it to our advantage. So, as changes come faster in the next half-century, so will our opportunities. All we have to do is take advantage of them!

(Dr. Swantz is Deputy Director of AMS' Dairy Division. His article is adapted from a speech he presented this past fall to the New England Milk Producer's Association, in Boston.)



These sweetpotatoes, packed in lidless crates and moved and stored on pallets, suffer fewer injuries and are less expensive to handle than those packed and handled conventionally.



A forklift truck can handle crated sweetpotatoes on a pallet. It's faster, requires only a forklift operator and a truck driver. Bushel baskets require larger crews.

Palletized Crates Reduce Sweetpotato Damage

SWEETPOTATO growers can reduce root injuries and handling costs by using crates that are both moved from the field and held in storage on pallets, instead of using bushel baskets in conventional handling methods.

This is the main finding of a two-year study made by marketing researchers in the U.S. Department of Agriculture and the North Carolina Agricultural Experiment Station.

Richard C. Fluck, of North Carolina, and Leaton J. Kushman, of USDA's Agricultural Research Service, found that about 13 per cent more roots were lost or damaged when they were handled in baskets instead of crates. Injuries and decay serious enough to downgrade the roots were twice as prevalent among sweetpotatoes in baskets as those in the crates. Loss of weight and damage not serious enough to downgrade the sweetpotatoes from U.S. No. 1 grade standards were also greater among the sweetpotatoes in the baskets.

Sweetpotatoes used for both the basket and crate studies were harvested from the same field. The researchers stored the roots 1 to 2 months under similar conditions, following the practices used commercially for curing and

holding.

Bushel baskets held about 49 pounds; the palletized crates 52 pounds. Five thousand baskets and 4,400 palletized crates were used in the tests. The crates were stacked 24 to a pallet.

Palletized crates can offer the grower more versatility in marketing sweetpotatoes held in storage, because those from different lots are more accessible in crates than in baskets.

A forklift truck could remove a palletload of crates from a stack without disturbing adjacent stacks containing sweetpotatoes of other grades, varieties, or from other fields. But when sweetpotatoes are stored in baskets, different lots can be reached only at a great inconvenience because the baskets are customarily stacked in an interlocking pattern. Those on top must be removed before those lower in the stack can be marketed.

Researchers estimated that reductions in weight losses and decay through use of crates could save \$19 per hundred bushels of sweetpotatoes. This estimate is based on prices in effect at the time of the study and on representative losses in each grade of sweetpotato damaged when handled in baskets. However, exact savings would depend

on quality of field grading, intensity of grading when preparing the sweetpotatoes for shipment to market, and on prices of the grades being sold.

Additional savings of 5 to 10 cents a bushel might result if crates were re-used for 10 years or more, with shipment of the sweetpotatoes in cardboard cartons after they're removed from storage. These savings over the cost of using bushel baskets are based on the assumption that baskets are used one year for storage, and then for shipment.

Labor costs would also be reduced by using crates because an operator of a forklift truck can handle as many or more sweetpotatoes per hour as a crew of four or more men used in moving bushel baskets.

In addition to the palletized crates described in this article, the researchers also tested crates and pallet boxes of different dimensions. Details of these handling tests are given in ARS 52-2, "Pallet Boxes and Palletized Containers for Handling and Storing Sweetpotatoes." Single free copies may be obtained by postcard from Transportation and Facilities Research Division, ARS, USDA, Federal Center Building, Hyattsville, Md. 20781.

Costs of Servicing Institutional Grocery Orders

By James J. Karitas

INSTITUTIONAL grocery wholesalers can determine — for the first time — how much it costs to distribute orders of various sizes to their customers, which include restaurants and other eating establishments, by using a guide developed by the U.S. Department of Agriculture.

The guide is based on a study of dry-grocery wholesalers made by USDA's Agricultural Research Service. Three institutional wholesale grocers with modern one-floor warehouses were studied. Their business volumes ranged from \$1½ million to \$8 million annually.

A recent informal survey made by ARS marketing researchers proved the need for the study. Wholesalers who were surveyed either overestimated or underestimated the cost of servicing orders of various sizes.

The wholesalers could avoid losses by using the guide to align their pricing policies with their servicing costs. Savings would ultimately be reflected in food prices, thus benefiting consumers.

Many wholesalers underestimated the cost of servicing both small and large orders (less than 7 and more than 30 cases). On the other hand, they overestimated the cost of servicing medium-size orders (7 to 30 cases). The adjacent chart compares the wholesalers' estimated costs with their actual costs.

Wholesalers underestimated the cost of servicing large orders because a large part of their costs was not varied with order size. These costs, such as administrative and sales costs, were assigned, in accordance with standard industry procedure, to each case sold. Wholesalers also tended to overestimate the efficiency with which they could handle large orders.

The size of each order, rather than the dollar volume of business over a period of time, will determine how profitable it is for a wholesaler to supply a given customer. For instance, the ARS study shows that a wholesaler may make a profit on one 20-case order, but may take a loss on two 10-case orders to a customer if the gross profit, per case, is the same.

The wholesaler would fare better by offering a discount on the basis of the order size instead of the traditional

basis of dollar volume over a period of time. And by offering higher discounts for larger orders and correspondingly lower discounts on smaller orders, his customers would be encouraged to give an order large enough to cover distribution costs, instead of following their frequent practice of placing several small orders among a number of wholesalers.

Small orders were particularly costly when delivered to more distant customers of the three wholesalers. For example, delivery costs averaged 15 percent of the selling price when four cases or fewer were delivered a distance of 35 miles. But when a 55-case order was delivered the same distance, delivery costs were only 2 percent of the selling price.

Delivery costs of small orders are not a lot less for short distances than for long-distance deliveries, either. When delivery of a 4-case order was cut from the 35 miles, in the previous instance, to only 5 miles, delivery costs accounted for an average of about 11 percent of the value of the order.

There are minimum order sizes that a wholesaler should maintain when making deliveries of varying distances. Order sizes necessary for each of the firms in the ARS study to break even were determined by the researchers.

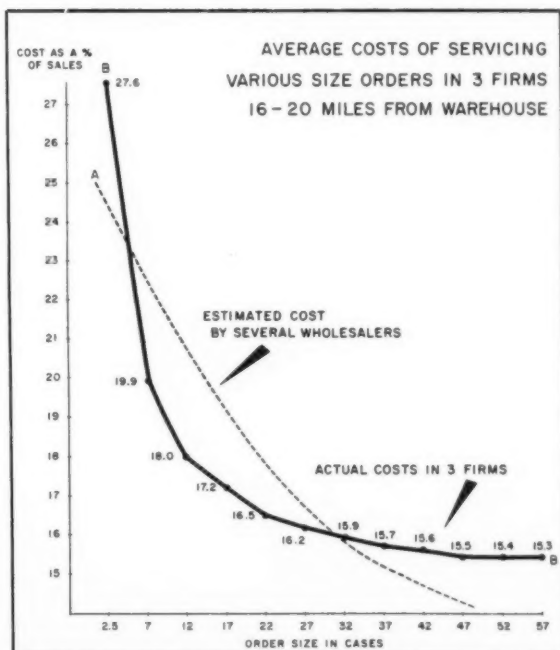
They found that, in delivering orders 16 to 20 miles, the smallest of the three firms could profitably deliver an order no smaller than 7 cases; the middle-size firm would break even with a 13-case order; and the largest firm would go in the red with orders smaller than 37 cases.

The differences among the three firms' break-even points reflect the range in operating costs, and in overall gross profit of the firms.

Researchers also calculated, on a cost-per-case basis, the total service costs for each of the three wholesalers. These figures, which were used to chart the break-even points for orders of different sizes, include both variable and nonvariable costs.

A research report is being prepared that describes the procedure wholesalers of different sizes may use to develop cost tables to pinpoint the order size and delivery distance that would be profitable for their operations. Comparisons of costs, briefly outlined in the examples given in this article, will be included in more detail and will enable wholesalers to compare their operations with those of the firms in the study.

(The author is a member of Transportation and Facilities Research Division, Agricultural Research Service.)



WHEN ASKED about his work, Mark Twain once replied: "Writing a book is one percent inspiration and ninety-nine percent perspiration."

When the Food Stamp Program comes to a new area, the ratio is about the same. There are weeks, even months, of planning and work before the first book of food coupons is sold to a needy family.

The Food Stamp Program, tested by the U.S. Department of Agriculture since 1961, and expanded and made permanent by the Food Stamp Act of 1964, helps low-income and public assistance families to upgrade their diets and helps to expand food markets.

Recipients invest part of their own money in the program — buying coupons in amounts that approximate their normal food expenditures. In return, they receive a coupon allotment of higher monetary value. These coupons are then used to buy food — with the exception of a few imported items — at retail stores.

But close Federal-State-local cooperation, hard work, and planning must precede the formal opening of a food stamp program in any area. Individual State welfare departments apply to the Food Distribution Division of USDA's Agricultural Marketing Service for program participation, specifying geographical areas in which they desire to operate. Based on available funds, AMS designates areas which can be served within the fiscal year. Remaining areas are scheduled for future inclusion.

The State department of welfare then prepares its plan of operation for approval by AMS. This plan describes how a State will operate and supervise the program.

State welfare officials are responsible for establishing eligibility requirements for needy families who want to participate. Careful certification of applicant households and arrangements for selling and issuing stamps need to be made. Once its plan of operation is approved, the State agency moves to implement its many food stamp activities.

Consideration is given to manpower, the hiring of new employees, the training of local welfare office workers, and the staffing of local offices where coupons will be sold. Local welfare offices then begin to certify each family for participation.

While State officials carry out their

tasks, AMS food stamp workers are busy getting in touch with wholesale and retail grocers, bankers, and others who will be involved in program operations. A small office is established where the food trades will have ready access to AMS personnel who approve food trade participation and supervise their food stamp operations. Lines of communication are opened to responsible State welfare and accounting officials.

Most important is the community's acceptance of the food stamp activity. Educational and informational support among all participating governmental bodies and the public is needed. Local agencies concerned with nutrition education cooperate by helping food stamp families make the best possible use of their increased food-buying power.

Everyone involved in the opening up of a new food stamp area works toward the common goal, avoiding confusion and promoting efficiency.

Bankers become familiar with procedures for redeeming cancelled food stamp coupons through the Federal Reserve System. AMS personnel are available to help them manage the details and work out special problems.

AMS field personnel brief wholesale and retail grocers on handling food coupons and operating within the few program regulations. Welfare workers help tell "the food stamp story" to low-income families in the area.

At the State level, heads of welfare departments and Governors are briefed and kept up to date on projects, problems, and progress.

And finally, when the gears have meshed; when the thousand and one details have been attended to; when the general public, governing officials, and prospective recipients have been prepared for the program; *then* the program opens for business.

There is no way of telling how long this process will take in any given area. Some States already have experience with the food stamp program. In those, expanding to new areas will be relatively simple. But in other States, the process will take longer.

But whatever the conditions, people responsible for establishing and opening new food stamp programs know: before that first book of coupons is sold, a lot of people will find the project is ninety-nine percent perspiration.

Preparing



An AMS staffer explains the operations of the Food Stamp Program to local welfare officials in Cleveland.

ing for New Food Stamp Areas

A behind-the-scenes report on the weeks, even months, of work before the first book of food coupons is sold to a needy family under the Food Stamp Program.



Food coupons are as precious as money. This Brinks team delivers a batch of them to a Cleveland issuance office.

(Continued next page)

(Continued from page 9)

Welfare workers, bankers, grocers, and AMS personnel have much to do — as shown by these scenes of preparatory food stamp activities in Cleveland.



Local welfare workers certify the eligibility of prospective recipients of food coupons.



Banks redeem coupons accepted by participating grocers from needy families under the program.



Local agencies concerned with nutrition education help families make best use of added food-buying power.



This grocer briefs his crew on proper methods of handling food coupons and what can be purchased with them.

Milk Marketing Orders — Orderly Change When Necessary

ONE IMPORTANT test of any program is that it be flexible enough to meet changing conditions, and yet continue to serve the purposes for which it was established.

Evidence that the voluntary Federal milk marketing order program has met this test is the strength of the program today after some 30 years of operation.

The program was established by Congress through legislation in 1935 and 1937, and is administered by the Dairy Division of the Agricultural Marketing Service, U.S. Department of Agriculture. It assures consumers of an adequate supply of fresh, wholesome milk by establishing and maintaining orderly conditions for marketing milk.

The program has expanded since 1947 from 29 milk orders, regulating about 21 percent of all milk marketed in the United States, to a total of 77 orders regulating about half of total milk deliveries in the Nation today, and serving about two-thirds of the total nonfarm population.

During the three decades of the marketing order program, significant changes have been seen on the farm, in the marketplace, and in the needs and wants of consumers. The program has been able to keep pace with this change, to continue its effective protection for the consumer, the dairy farmer, and the milk dealer, principally through the orderly procedure for change provided by Congress.

The Federal milk marketing orders help maintain orderly marketing conditions by establishing minimum prices dealers must pay farmers who supply bottling milk to a specific marketing area. From time to time, to meet changing conditions, modifications are necessary in the complex provisions of an order, perhaps in the pricing formulas, perhaps in the area to be covered, or perhaps in the classifications for milk and milk products.

These changes are important, and they affect dairy farmers, the handlers to whom they sell their milk, and the consumers who ultimately use the milk. Therefore, these changes must go through a series of steps before they may be adopted, steps designed to give the farmer, the handler, and the consumer a chance to participate in the decision. These steps include:

1. Public hearing.
2. Recommended decision.
3. Time for exceptions to the recommendation to be submitted.
4. Final decision.
5. Vote by farmers.
6. Final order, if approved by farmers, placing the amended order into effect.

But this procedure provides only the framework for widespread participation in the decision — the framework must be used to its fullest extent to provide all the protection for which it was designed. The system works best when everyone concerned — the farmer, the handler, and the consumer — attends hearings and presents testimony on which the decision will be based.

A vital aspect of this orderly procedure is its administration by a disinterested — but not uninterested — agency, which works for the public benefit and not in the interest of any single group or individual. The program is administered impartially by the Dairy Division, and ultimate decisions are made by the Secretary of Agriculture on the basis of fact and evidence presented to him.

To be specific let's take a proposal to amend the provisions of an existing order and follow it through to adoption.

After the amendment has been proposed, AMS milk marketing specialists schedule a public hearing in the area regulated by the order, to make it easy for anyone interested to attend. The date, place, and time of the hearing, and details of the proposal, are announced in the Federal Register, cooperatives and milk dealers in the area are notified, and the information is sent to newspapers and radio and television stations so it will reach everyone interested.

The hearing is conducted by a USDA Hearing Examiner, and all interested persons may submit evidence, either in favor of the proposal or against it. A stenographic record is made of all testimony presented.

Milk marketing specialists familiar with the area then study and evaluate the evidence, and a recommendation is prepared. This recommendation must be based solely on the evidence presented at the hearing, evidence that is on the record for all to see. USDA must also present at this time the reasons

on which the recommendation is based.

This recommended, or tentative, decision is also published in the Federal Register and announced through newspapers and the trade press. An appropriate period of time is allowed for anyone interested to take exception to the recommendation or to submit comments in favor of it.

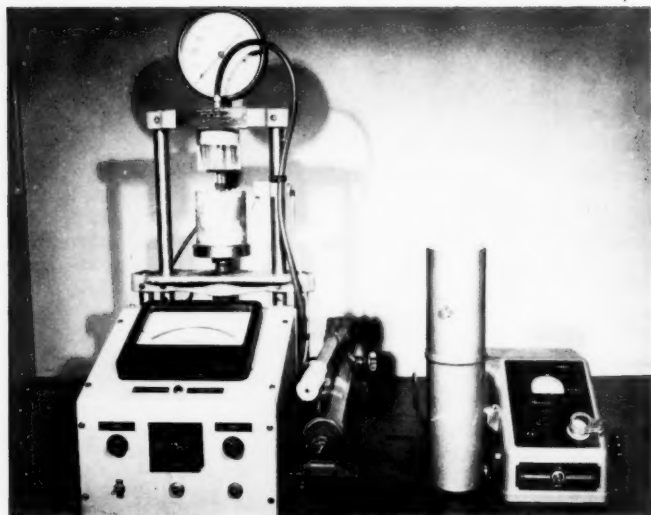
When this time has expired, exceptions and comments are considered, and USDA arrives at what is termed a final decision. This is based on both the evidence presented at the hearing and on the exceptions and comments. Again, the reasons supporting the action are presented. The final decision is published and arrangements are made for a vote on the issue by dairy farmers concerned.

Thus, the final decision is made by a disinterested agent, the Secretary of Agriculture, on the basis of facts adduced at a public hearing. But the farmers who supply the milk for the market must favor the decision in order for the program to continue. Their approval may be determined through a poll of their cooperative associations, or through a referendum in which each farmer casts an individual ballot. At least two-thirds of the farmers must approve the amended order, or the order program in that area must be discontinued.

Only after these painstaking steps have been followed is the amended order, incorporating the change, placed into effect.

In emergency situations, when prompt action is vital, the recommended decision may be eliminated from the procedure, and some of the provisions in the order may be suspended or dropped without following the normal procedure. This is done only when there is a clear need for emergency action and time will not permit the more time-consuming normal procedure to be followed.

With this thorough procedure — designed to protect the interests of the farmer, the dealer, and the consumer — conducted by an impartial agency, it is clear that change in a marketing order is not a haphazard affair. The program insures that when modification is necessary because of changing conditions, the order can be changed in a manner equitable to all.



In the 1½-minute test, the container at right is filled with corn. Electricity is passed through corn to meter at right, indicating corn's capacity to carry current. Corn is then pressed by spike on cylinder at left, which causes current to flow through corn to meter, indicating corn's resistance to flow of current.



The two meter readings are then checked on a chart indicating whether corn has been damaged by heat. Above, a closeup of the spiked cylinder which exerts 600 pounds of pressure against corn sample in container.

New Instrument Detects Heat Damage in Corn

By Charles E. Holaday

AN ACCURATE 1½-minute test may replace the hours-long tests now used to determine if corn has been damaged by overheating when it's dried. The new method, called a capacitance resistance (C-R) measurement, has given excellent results when tested by marketing researchers in the U.S. Department of Agriculture.

By using the C-R test, developed by USDA's Agricultural Research Service, farmers, millers, and others can determine in seconds instead of hours whether the milling quality of corn has been damaged. Preliminary experiments with the equipment have indicated that the C-R test may also reveal heat-caused damage to corn germination. Additional tests are planned to determine more definitely whether the tests can be reliably used to indicate reductions in germination and also in nutritional value of corn. Impairment of these qualities are some of the adverse effects of overheating of corn when it's dried.

Equipment for the C-R test — two electronic instruments — requires little

space. Tests can be made with little training or experience.

First, a well-mixed corn sample weighing 250 grams (about ½ pound) is placed in a metal container attached to one of the instruments. The container is wired to carry an electric current, which passes through the corn when a switch is turned on. A capacitance meter on the instrument measures the corn's ability to carry an electric charge.

After noting the meter reading, the operator places the corn in another container attached to the second instrument, an ohmmeter. The corn is pressed down into the container, under 600 pounds pressure, by a cylinder connected to a hydraulic pump. An electric current is then passed through the pressed corn. A reading taken on a meter shows the corn's resistance to the current.

Scientists have found a logarithmic relationship between the two meter readings when undamaged corn is tested. When the two meter readings deviate from this relationship, it indi-

cates that the corn has been damaged. This relationship has been plotted on a chart so that paired readings can be easily checked without any paperwork, to quickly determine whether corn samples are from heat-damaged lots.

Greatest precision is obtained by taking three readings per sample with each meter. The readings would be averaged before checking them on the chart, requiring a total test time of 4½ minutes.

Single readings on each meter are accurate enough for routine tests, though. Testing would therefore be completed in only 1½ minutes from the time the sample is mixed until readings are made on the meters.

Fast, electronic analysis of the corn samples is keyed to the changes in moisture content within the kernels when they are overheated. If the corn has been overheated, moisture content in the endosperm (interior) part of the kernel loses its ability to hold moisture. The moisture lost from the endosperm migrates to other parts of the kernel, such as the surface part.

The higher-than-normal surface moisture is measured by the meter as current passes over the surface of the sample kernels. Because a high surface moisture content would increase the kernels' capacity to carry a current, an overheated sample would have a high reading on the meter.

However, the operator will not know from this meter reading whether the corn is damaged until he pairs the reading with one from the capacitance meter, which measures the overall moisture content rather than changes in moisture distribution within the kernels. The further the paired readings deviate from those for normal corn, on the operator's chart, the greater the heat damage to the samples.

The C-R tests confirm a finding made by other investigators: moisture content

before corn is dried can be as important as the temperature used to dry the corn. In the ARS tests, the higher the moisture content of the corn before drying, the more likely was heat damage.

The risk involved in drying high-moisture corn was demonstrated in a test with two samples of corn, one with 33 percent moisture before drying and the other with 19 percent. The high-moisture sample was damaged more during drying even though it was dried at a "safe" temperature (120° F.) and the low-moisture corn was dried at an "unsafe" (200° F.) temperature.

Experiments with the C-R tests were made with two corn hybrids. Good results were obtained with corn of different moisture contents in tests made at Beltsville, Md.

Starch-yield tests were made with each sample, confirming the accuracy of the new C-R test. Starch-yield tests are an acknowledged indicator of heat damage in corn.

The new C-R test has also been used in preliminary experiments made with wheat. The test shows a relationship between moisture content and wheat quality — such as deterioration in protein content. Further experiments are planned with wheat and also with peanuts. Results will be published when tests are completed.

Technical details of the tests with corn are given in *Cereal Chemistry*, November 1964.

(The author is a member of the Market Quality Research Division, ARS.)

Custodial Account Protection Pays Off

By Harry L. Williams

(EDITOR'S NOTE: The December 1964 issue of *Agricultural Marketing* carried an article, "Custodial Accounts — Protection for Producers," describing how the Packers and Stockyards Act helps protect producers by requiring livestock market agencies to maintain custodial accounts for shippers' proceeds. Since that article was written, the value of this requirement was forcibly brought home to a Midwestern auction market, as Mr. Williams relates below.)

SEVERAL months ago the press reported the arrest of a smalltown Nebraska bank president for embezzling approximately two million dollars in bank funds.

Other than head-shaking comment on another "unexplainable tragedy" of society, the story received little more than passing interest from persons outside the immediate area.

But the case had two million dollars' worth of interest to bank depositors in the area. And \$203 thousand worth of interest to livestock producers. The case serves to demonstrate an important protection given livestock producers and market agencies by the Packers and Stockyards Act.

The P&S Act — administered by the

Agricultural Marketing Service of the U.S. Department of Agriculture — safeguards free, fair, and competitive marketing through the regulation of business practices of those engaged in interstate livestock, poultry, and meat marketing.

Included among the Act's regulations is the requirement that all livestock market agencies maintain a "custodial account for shippers' proceeds," separate from their business operating funds. When these accounts are in an FDIC-insured bank, and are properly labeled at the bank, and the books of the market agency reveal the exact interest in the account of each shipper, the Federal Deposit Insurance Corporation will insure the funds of each shipper to the maximum of \$10,000, rather than the normal blanket \$10,000 insurance on the entire account.

Let's apply this protection to the case in point.

A local auction market was one of the depositors in the bank which failed as a result of the bank president's embezzlement. At the time of the bank's failure, the auction market's custodial account contained \$203,209 belonging to 122 shippers.

The FDIC audit of the bank records showed that the account was of a custodial nature, and the auction market's custodial account *did* reveal the exact

interest which each shipper maintained in the account — since the auction market had complied fully with the P&S Act regulation.

As a result, 116 of these shippers were paid approximately \$101,000 in FDIC insurance — the full amount of their interest in the account, since none of these 116 had more than \$10,000 in the account.

The remaining six shippers each received an FDIC check for the maximum \$10,000, as each had more than that amount in the account.

In addition, the FDIC treated the shippers' funds in the custodial account separately from any personal funds on deposit with the bank. These shippers, therefore, received separate insurance coverage on their money in the custodial account, and were also entitled to \$10,000 insurance coverage on funds in their personal accounts.

Thus, the auction market's compliance with the Packers and Stockyards Act provided additional protection for its shippers' funds. Had the market's custodial account not been maintained according to the P&S Act, FDIC would not have insured the funds of each shipper to the maximum of \$10,000.

(The author is Chief of the Stockyard Branch, Packers & Stockyards Division, AMS.)

Distinguishing Annual Ryegrass Seeds From Perennial

Root of annual — but not perennial — produces
"Annuloline," which fluoresces under ultra-violet lamp.

By Bernard M. Leese

IF YOU HAVE ever put in a lawn, you know that a particular use to be made of it demands a particular kind of grass seed to be planted. An area for beauty only, for instance, may require a fine-textured, slow-growing grass, while a play area for children may demand a coarse-textured, fast, growing kind of seed.

In buying lawn seed, remember that the label on the package must state the kinds of seed within it — *completely* and *truthfully*. This is one of the requirements of the Federal Seed Act for lawn seed moving across States lines. And it's required under State seed laws for lawn seed sold within each State. Information pertaining to the quality of the seed is also required on the label.

Let's consider ryegrass seed. It's a coarse-textured grass, but is a component of many lawn seed mixtures and is often sold independently to provide a fast-growing lawn that will stand some abuse. The Federal Seed Act, since July 1963, has required that labeling for ryegrass seed state whether it's *annual* or *perennial*. This information is important to the homeowner, since an annual (or Italian) ryegrass lawn

serves, during its short life, only as a temporary cover. Perennial ryegrass lives longer — usually 3 or 4 years — and grows only where the climate is not too severe.

Seed officials of the Agricultural Marketing Service, U.S. Department of Agriculture — in administering the Federal Seed Act — are routinely using a fluorescence test to distinguish between the annual and perennial species of ryegrass. The method was developed by seed specialists of the Maryland State Board of Agriculture. The Seed Branch of AMS' Grain Division has made some minor improvements in the technique and has recommended that this method of testing be used by all State and commercial seed laboratories.

A substance called *annuloline* is the key to the test's success. Produced by the root system of annual ryegrass, but not by perennial ryegrass, the substance fluoresces when placed under an ultra-violet lamp in darkness.

In making the test as a check on labeling, the seed technologist places ryegrass seeds on filter paper, which he then folds with transparent wrapping paper into what is known as a "rag-

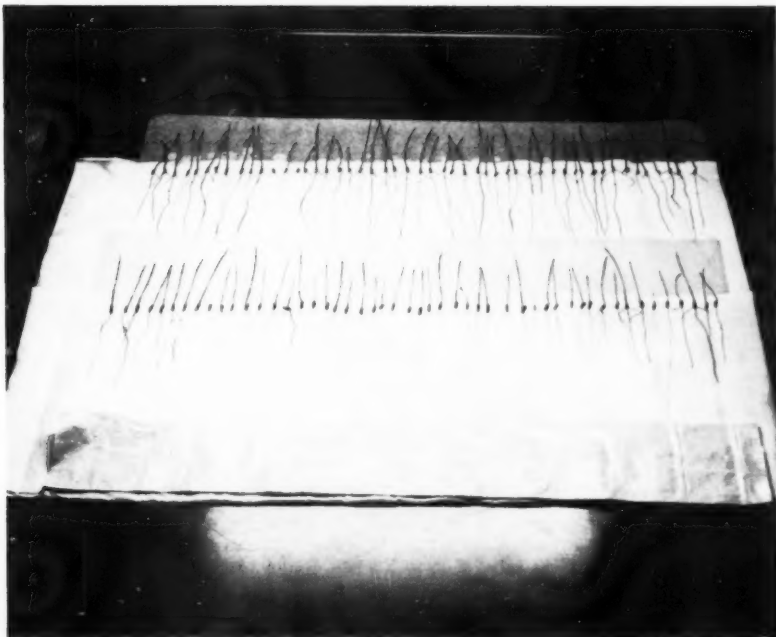
doll." He moistens the ragdoll and places it into a temperature-and-humidity-controlled germinator and keeps it moistened as necessary for proper growth.

Fourteen days later, he unrolls the ragdoll and exposes the roots of the ryegrass seedlings to the ultra-violet lamp in a dark enclosure. He counts to determine the percentage of seedlings representing annual ryegrass (those that fluoresce bluish-green) and perennial ryegrass (those that don't fluoresce). At the same time he's making this test, he may determine the germination percentage of the sample.

The Federal Seed Act's rules and regulations spell out the formula for calculating the percentage of annual and perennial ryegrass in a given sample.

The fluorescence test itself, however, gives the seed technologist the basic information for making this important check on lawn seed labeling.

(The author is head of the Seed Testing Section of the Seed Branch, Grain Division, Agricultural Marketing Service, U.S. Department of Agriculture.)



When exposed to an ultra-violet lamp in a dark enclosure, ryegrass seedlings at top fluoresce, thus are annual. Those at bottom don't, and are perennial.

Below, AMS seed technologist Eltora Schroeder places ryegrass seeds on filter paper as initial step in making fluorescence test to determine species.



Above, seeds in moistened "ragdoll" are placed into germinator. Seed technologist prepares to remove those in which seeds have germinated after 14 days.



Teamwork In Texas

A report on a workshop conducted by Texas A&M University for growers and shippers of the Texas Federal fruit and vegetable marketing orders.

THERE'S more to marketing than a packinghouse, a carrier and the telephone. Effective marketing means having information — lots of information — and digesting it, analyzing it, then using teamwork to put the knowledge gained into action.

That was the essential message of the marketing order workshop recently conducted by Texas A&M University—for the growers and shippers who serve on the administrative committees of the Texas Federal fruit and vegetable orders.

The Texas fruit and vegetable industries have been using their marketing orders for a number of years . . . using them to improve returns to growers for carrots, lettuce, tomatoes, onions and citrus. The programs, administered by the Agricultural Marketing Service, have enabled the growers to work together to solve their marketing problems. The workshop carried this teamwork approach a step further — bringing the skills and facilities of the Texas A&M staff into the picture.

It was a workshop indeed, not a short course merely to educate growers and shippers. It accomplished an exchange of knowledge and ideas to the mutual benefit of grower, shipper, and economist. Each was eager to learn about the bailiwick of the others — seeking information to fill in the blanks.

The A&M staff demonstrated some revealing market analyses for growers and shippers. But at the same time, they recognized they had much to learn

about the practical aspects of the industry.

Growers and shippers responded by exposing some of the realities of the trade . . . the point of view from the field, the sales desk, the school of hard knocks.

Each group sought new answers to old questions . . . new solutions to old problems. Each inquired sincerely, "What can we do?" And, then, expressed enthusiastically, "We'll do it!"

High points of individual commodity market structure were related to the Agricultural Marketing Agreement Act. These were explored relative to what types of regulation might be used to greatest advantage.

Good quality was a common recommendation for all commodities—like-wise, acceptable packs and containers. These were tied to the demands of the market . . . consumer, retailer, wholesaler preferences (real or imaginary).

Coupled with this was emphasis on a new image. Pride! Identify the pack and let the world know. Shed the old adage "let the buyer beware" . . . rather "let the buyer *be aware!*"

Growers also took a close look at flow-to-market authority as a potential tool for carrots and onions . . . commodities enjoying seasonal market domination by Texas but often with oppressive supplies at depressive prices.

All roads led across the bridge of research. Too many areas of the marketing picture remain unclear or unknown. Research is needed into market development to know where to go and

with what . . . competitive advantages . . . market strengths and weaknesses . . . how, if possible, to increase demand, to know and change consumer attitudes.

Research for new uses. And promotion of these uses.

The workshop started a lot of people thinking — success in its own right. Most important, it struck home the need for better market analysis — for better committee decisions. Texas A&M, AMS, and marketing order committees, by working together could mutually share the practical knowledge of the trade and the professional talent of economists. Committees could make more effective decisions to obtain more effective results. And, by better understanding of trade problems and market structure, and the data only the committee can provide, economists could make more effective studies.

There is now a greater recognition of the need for responsible decisions . . . a recognition that millions of dollars are at stake. With stakes so high, is it any wonder that growers and shippers want to take careful aim at their problems rather than shoot fast from the hip? To base their decisions on sound economics and not on emotions?

Already the carrot and citrus committees have arranged for continuous market analysis through the facilities of A&M. Other commodity groups are expected to follow.

Now they have organized a team. And by working as a team, a healthier market can be developed.

